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(54) Title: GLOBAL INTERACTIVE COMPETITIVE TRADING WITH DYNAMIC PRICING

(57) Abstract: A real-time dynamic pricing technology and process wherein a vendor can set up the parameters for a real-time dynamic pricing regime which may provide an aggregate value of sales, maximising the yield from the marketing of time-sensitive productivity value, inventories, capacities or services. The vendor can adjust the dynamic pricing regime in real time in accordance with the market uptake which is providing the highest aggregate yield from sales. The process enables vendors to control yield maximisation from the sale of productivity value, inventories and capacities in accordance with a vendor's economic imperatives.

Application for Patent by Richard Nelson Scott

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### **Global Interactive Competitive Trading with Dynamic Pricing**

#### **Background to the Invention**

##### **The Free Market Economy**

1. The free or open market economy does not occupy any single space or site. There is no global standard, price level or structure for all property/produce/goods/ services or any other commodity purchased or used by consumers/ purchasers/ traders - be they individuals, a multiplicity of individuals or a corporation or otherwise statutory body. A multitude of factors can and does influence such standards, price levels and structures, in a multitude of circumstances, conditions and geographical locations throughout the world.

2. The free enterprise culture rewards those individuals and corporations who are best informed and equipped with current and ever-changing information reflecting the uncertainties manifest in all trading.

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3. Free enterprise societies have matured in a trading culture dependent on a free flow of information designed to seduce consumers/purchasers/traders with property, products, goods and services at various price levels; according to the economic imperatives of vendors.
4. This maturity of the trading relationship between vendors and consumers/purchasers has conditioned consumers/purchasers to expect frequent and special reduced price offers on products and services. These every-day marketing activities by vendors have long since lost their excitement and novelty appeal to the consumer/purchaser. Nevertheless such information can, if known to the consumer/purchaser, substantially impact the cost of living and budgets of the average consumer/purchaser.
5. Multitudes of vendors, all competing for the attention and purchasing power of the consumers/purchasers, engage in ruthless advertising warfare, frequently founded on price advantage to the consumer/purchaser. However, the ubiquitous diversity of the media makes it enormously difficult for the consumer/purchaser to correlate the competing media messages, and thus be enabled fully to exploit the free market culture and opportunities available to a consumer/purchaser.
6. Commerce/industry/productivity/marketing/sales are all activities permanently driven by growth - and this constant dynamic is the catalyst which creates the consumer market and demand. Research, development and practice has clearly proven that marketing, via multiples of supermarkets and other outlets, facilitates bulk buying at highly competitive prices, which in turn enables competitive prices for property, products, goods and services in the marketplace. However even the most efficient buying/inventory control/sales budgets and forecasts - cannot and do not prevent excesses in any of these commercial functions. An economy driven by perpetual growth in productivity and in consumer/purchaser spending must and does create imbalances between the volume of production or supply and the volume of demand at current price, imbalances which can and do create fluctuating surplus

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inventories of property, products, goods, services and unsold capacities. These are not one-time inventories to be liquidated by auction, but are ongoing fluctuations of inventory, creating problems of space, depreciation and financing which must be resolved dynamically, in real time.

7. Such pressures on the economics of the production/distribution/wholesale/retail sectors become intolerable and demand incessant solutions. These traditional solutions can be stated in the following order of dynamic priorities:

7.1. Medium and long-term strategic budgeted marketing campaigns deployed in the traditional media, such as press/TV/radio/billboards/direct mail etc.

7.2. Special focused promotions, planned and controlled in the medium-to-long-term time scale.

7.3. Dramatic short-term marketing and sales campaigns designed to resolve intolerable excesses of inventory, unsold capacities and cash flow pressures. These dramatic operations are promoted in the traditional media and at local levels through in-store or other appropriate locations. They are manifested in substantial short-term price cuts for the consumer/ purchaser for specific property, products, goods, services or unsold capacities.

8. Analysis of all forms of traditional media campaigns targeted at consumers confirms that dramatic short-term marketing and sales campaigns are a dominant and permanent component in the productivity/retail/consumer/purchaser relationship.

9. Notwithstanding the dominance and permanence of this component, any solution to the underlying problem, excesses of inventory or services or unsold capacities, is limited to the success or otherwise of the marketing/advertising dramatic campaigns, manifested in a traditional media fundamentally passive in its relationship with the consumer/purchaser.

10. There is not, nor can there be, any interactivity through traditional media resources between the vendor and the consumer/purchaser/trader, with respect to the responses to any short-term marketing/sales campaign - designed as a dramatic

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catalyst to resolve excesses in inventory of property, products, goods, services and unsold capacities.

11. A further problem, clearly evident, in the exercise of such a dramatic catalyst, can be observed by an examination of any or all of the traditional media outlets:

The problem is how to prevent or avoid the dramatic catalyst being subsumed, or becoming a commonplace message, in the overwhelming impenetrable jungle of the general mass of advertising activity.

12. Attempted solutions to this problem are to be seen in the bigger, bolder, space-consuming, more expensive advertisements, the marketing principle being:

"The bigger, the bolder, the more expensive, enables separation and distinction from the commonplace of the herd."

13. However, these bigger, bolder, more expensive dramatic catalysts all suffer from a common fatal flaw:

The incentive for a consumer/purchaser to buy is typically fixed, and expressed as a specific price reduction, or a percentage reduction.

Notwithstanding the bigger, bolder, more expensive message, if the consumer is unaware of the message or is not impressed by the message, or is simply not interested in yet another offer of property, products, goods, services or unsold capacities, or in the sales price or deal offered, the dramatic catalyst, designed to address and resolve the intolerable excesses and pressures, referred to in 7.3. above, will come to nothing. The intolerable excesses of inventory, unsold capacities and cash flow pressures will remain unaltered and potentially dangerous to the solvency and performance of any involved commercial interest.

14. What, then, is the conventional solution to the problem of the common fatal flaw outlined above?

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The conventional solution is to repeat the process of the bigger/the bolder/the more expensive dramatic catalyst for the same property, products, goods, services or unsold capacities - at an even lower price - in the hope that a repetition and a new improved lower price, will resolve the intolerable excesses and pressures. If it doesn't, then the merry-go-round will be resumed at a later stage - deploying the same marketing and sales formula - usually resulting in substantial financial losses to the commercial interests involved.

15. All of this activity goes on at exorbitant cost and substantial financial losses on inventory value, without any interactivity with the consumer/purchaser or information feedback on price - other than a negative buying response from the potential consumer/ purchaser, who has not participated actively at any stage in the vendor's dramatic catalyst strategy.

16. Conclusion:

Given the constraints inherent in the use of the traditional media, with respect to resolving intolerable excesses of inventory, unsold capacities and cash flow pressures, any failure of a particular dramatic catalyst strategy will generally be compounded by a repetition and continued merry-go-round of highly expensive - highly speculative - bigger - bolder - advertising and price reductions - which may or may not attract and induce bored and jaded consumers to purchase. A fiscal Russian roulette - which can be financially disastrous - on an escalating scale - to a vendor.

### **Background to the Invention**

#### **The Sales Process in the Free Market Economy**

1. The ideal economy is one in which there is a free flow of information, ideas, goods, services and means of exchange.

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2. The development of canals in the eighteenth century transformed the free flow of goods. The development of railways in the nineteenth century further transformed the free flow of goods, services and people.
3. Mass production developed to serve mass markets
4. In the course of industrialization, economies of scale have concentrated production and supply of particular goods and services in a relatively small number of businesses. Many manufacturers and providers of goods and services have come to be divorced from direct interaction with consumers. Distribution and selling are largely conducted through intermediaries. The old personal contact of the street market between supplier and consumer has been lost or marginalized. The stallholder in the market still continues to call his wares, to entice consumers, to excite them with a special offer and to close sales directly, but that is a small proportion of commerce today.
5. The manufacturers or providers of services whose wares are sold through wholesalers, distributors and retailers still need to promote these wares to the consumer. A vast advertising industry has developed, using a variety of media, newspapers and magazines, radio and television, building brand images, and trying to persuade consumers to buy. However conventional advertising, no matter how clamant, lacks any direct interactivity between the manufacturer or supplier and the consumer. Yet direct interactivity can have a powerful influence in the sales process.
6. A valuable example of the importance of direct supplier/consumer interactivity is found in the home improvement market.
  - 6.1. Products are advertised and are sold through major chains of hardware and Do-It-Yourself stores. While some manufacturers' brand names survive, the product market is dominated by a few retail chains. Retailers have used their direct contact and real-time interactivity with consumers to establish dominance in place of the manufacturers. The economics of this part of the home improvement industry have



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been bifurcated. The manufacturer sells to a few retail chains and the retailers sell to the mass of the consumers.

6.2. However, some products require expertise in installation. For double glazing, for siding, and for certain other significant home improvements, some manufacturers employ their own staff to sell directly to the consumer, within the home. Such suppliers of high value products/ services maintain direct contact and interactivity with consumers and they are able to adapt readily to the economic imperatives of their industry. When business is slack, special promotions are introduced. The salesman is encouraged to go back to prospects who did not buy at the standard price level and to propose a sale at a lower price to win an immediate order. This enables the manufacturer to maintain a more even flow of production during periods when orders have fallen, whether for seasonal or any other reasons. There is a carefully balanced control, based on the economic imperatives of the business at any specific time, with the aim of maximising total yield by variation of price and volume. In a direct sale, there is greater scope for effective yield control by the manufacturer alone, than when the total value of the sale is divided between manufacturer and retailer, with each having control over only part of the sale.

7. At the end of the twentieth century two developments of technology and their multifarious applications are again transforming industry. Convergence and divergence of technologies are opening new means of real-time interactivity which can transform the relationships between supplier and consumer. These are the technologies of computers and of telecommunications. The capacity of computer hardware and software increases by leaps and bounds, while the cost falls dramatically year by year, even month by month. At the same time packet switching and other technologies are transforming the reach and the economics of telecommunications. Articles are written about the potential of the developing technologies to transform commerce via the Internet.

7.1. Within individual businesses and in Business to Business (B2B) commerce, the combined forces of the two technologies are having a transforming effect on efficiency. Just-In-Time manufacturing with automated purchasing, stock control, work scheduling and operations control leads to marked reductions in costs. Data

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warehousing, and especially the use of smaller, lower-cost, data marts, affords managers and supervisors real time access to cost analyses, and capacity forecasts, yielding better cost control and better capacity utilisation. The Internet offers real-time interaction between businesses, however far apart they may be, at such low cost as to be almost negligible in relation to the commerce which can be conducted. Marginal capacity in raw chemical processing can be sold in spot markets at marginal prices to other industrial users. B2B marketplaces are emerging rapidly, from the specialised uses of shared databases and of efficient communication protocols.

7.2. Attempts are being made to find a magic formula, a holy grail, for Business to Consumer (B2C) commerce via the Internet. Interactive television has the potential to offer a parallel channel for commerce, but with subtle differences in the way transactions can be originated, controlled and effected. Mobile telephones and Personal Digital Assistants (PDAs) are sweeping into use.

8. By many, these interactive technologies are perceived as offering alternative avenues of commerce, and as being in competition with traditional channels of marketing, publicity, promotion, distribution and sales.

9. In 1997, a research and development project was established to examine the nature of media of communication, of emerging technologies and of possible modes of interaction between technologies and industry which might have a transforming influence on industrial processes and/or on the economics of industry. The potential interactions of emerging technologies with marketing/selling processes enable new and valuable applications of technology within industrial processes.

10. One of the transforming conclusions of the R & D project is that the role of the Internet in industry should be seen not as an alternative to traditional marketing/selling/ distribution, but as a newly enabled step in the total industrial process. Computer and communication technologies, through the medium of the Internet and interactive television now enable industry to re-establish real-time sales interactivity with the mass of consumers. The technologies of the Internet can bring

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back to industry some of the features of direct interactivity associated with the bazaar or street market, but expanded globally, generating real sales interactivity with a mass of remote consumers.

11. The steps of the bazaar sale are:

- \* Attract attention.
- \* Gather an audience
- \* Arouse interest
- \* Create a need
- \* Demonstrate the product/service
- \* Emphasise the benefits
- \* Generate excitement
- \* Create an incentive to buy now
- \* Make it easy for the consumers to buy
- \* Close the sale
- \* Receive payment
- \* Deliver the goods.

12. The R & D project concluded that the unique contribution of communication technology to B2C commerce is likely to be as an avenue enabling the manufacturer or supplier to engage in the direct interactive sales process of the bazaar trader, but with a global audience of consumers.

13. No industry can exist without selling. Selling is not an afterthought. Selling is a precondition. Whether it is the travel industry or the automobile industry, no materials will be bought, no facilities created, no goods or services produced unless a reliable selling process exists. No investment of capital will take place, no material, labour and services costs will be incurred, unless a reliable selling process exists within the industry. The primary objective of all industry is to sell its output and to make a profit.

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14. The challenge of the R & D project was to develop a new technology, or so to combine existing technologies as to automate the street trader and to project that style of direct interactive trading globally to a mass of consumers, but engaging each consumer personally in an interactive process with the supplier; a sales process which would be attractive, engaging, stimulating, informative, exciting and irresistible. The challenge was effectively to reintegrate the consumer into the industrial process.

15. Communication has been transformed by the advent of the Internet, interactive television, interactive wireless communication. The key to this transformation is interactivity in real time, virtually instantaneous interactivity. The R & D project indicated the potential for a Dynamic Pricing Technology facilitating real time price change, real time change in supply behaviour and real time change in purchaser/ consumer behaviour.

#### **Background to the Invention -**

##### **The Economics of Industry in the Free Market**

1. It will be helpful to examine the relationships of demand and supply within industry, and the concepts of price, of cost and of value.
2. The only true relationship of price to cost, is that, over the long term, the price received by any business for the total of its goods or services must exceed the total cost.
3. In any industry significant fixed costs are likely to be incurred.
  - 3.1. In the cruise industry a company may purchase or lease a cruise liner. A fixed, inevitable, unavoidable cost is incurred whether the liner is owned or leased by the company. Even if the liner is not in use, there are ongoing maintenance, security and demurrage costs.
  - 3.2. In the airline industry substantial fixed costs are incurred for the purchase or lease of aircraft, for stocks of spare parts, for hangar space and apron space.

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3.3. In the automobile industry substantial initial costs are incurred in product design and testing. Substantial fixed costs are incurred in premises, plant and machinery.

4. In any industry significant marginal or discretionary costs are incurred to provide a product or service to a customer.

4.1 In the cruise industry the liner has to be provisioned, fuelled and manned. Certain insurance is mandatory. Staff have to offer and sell the service.

4.2. In the airline industry, the aircraft has to be provisioned, fuelled, manned, inspected and serviced. Airport gateways have to be rented. Staff may work 24 hours a day offering and booking flights.

4.3. In the automobile industry materials have to be purchased. A factory has to be equipped and provisioned, serviced with utilities, manned and scheduled. The product has to be tested and transported to the customer.

5. The distinction between fixed cost and marginal or variable cost may change, particularly over a period of time. Over a period of a year, labour may be viewed as a marginal cost. Over a period of a week, or even longer, labour is likely to be a fixed cost.

5.1. In the cruise industry the cost of fuel and of crew for a liner is a marginal cost in relation to itinerary, but a fixed cost in relation to number of passengers.

5.2. In the airline industry, the balance between fixed and marginal costs may not even vary by itinerary, since the aircraft may be required at a defined location for a connecting or subsequent flight, and may have to fly there, even if it has no passengers. A cruise can be shortened, an aircraft flight cannot.

5.3. In the automobile industry, employment agreements severely limit the discretion of management to vary labour cost marginally. A very substantial part of the cost structure of the automobile industry is fixed in the short-to-medium term. This creates powerful pressure to maintain a regular production schedule.

6. Management in industry is faced with the problem monthly, daily, hourly, of balancing demand with supply.

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6.1. In the food industry product life can be a significant factor in the economics of running a business. Some product must be produced, delivered and sold within a relatively short time scale.

6.2. When a cruise liner is to sail on a date and time certain, there is a powerful incentive to sell every berth on board, before departure. If the total price yield from all the berths which are sold does not equal or exceed the total of costs incurred, the cruise company suffers a financial loss.

6.3. In the automobile industry demand fluctuates seasonally, but output cannot readily be varied to suit demand. Demand has to be stimulated from time to time to absorb capacity. A whole system of new registration letters available in September has been developed as one means of stimulating demand at an otherwise naturally slack period for sales.

7. The economics of most industries require the closest interactivity between manufacturer/supplier and consumer. Ideally, supply should be varied according to demand. However, to the extent that costs are not marginally variable, there is need for consumer behaviour to be examined, understood and influenced, in order that the market should absorb the steady flow of products or services provided by industry.

The primary functions of marketing are twofold:

7.1. The identification, creation and quantification of market opportunities

7.2. The balancing of consumer demand with capacity to supply.

8. The balancing of supply and demand is a constant problem for industry. To a large extent the economics of industry are determined by the interactivity between vendor and consumer. Obtaining the maximum price yield from available capacity (that is, from sale of the output of that capacity) is the economic conundrum facing every manager in industry.

9. From this perspective it can be seen that it is important in any industry for the manufacturer/supplier to have the closest possible interactivity with the consumer.

Yet the whole process of industrialisation with its mass production and mass

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marketing has steadily divorced the supplier from real-time interactivity with the consumer.

10. This dangerous gap in industry between the manufacturer/supplier and the consumer resulted in the conception and birth of marketing and advertising "specialists" who have encouraged illusory expectations. The illusion, that marketing and advertising are a satisfactory substitute for selling interactively to consumers, is perpetuated because there is no direct way to measure the effectiveness of any indirect marketing plan or any advertising campaign.

11. At the root of every control system is reliable feedback.

11.1. When the steering wheel of the cruise liner moves the rudder, the compass gives the helmsman direct, reliable, quantifiable feedback on the effect of the rudder change on the direction in which the liner is headed, subject only to any delay/ inertia/ hysteresis within the system.

11.2. For an advertisement in a newspaper or on television there is no comparable direct feedback available about any effect on the consumer. An advertisement is, by its very nature, passive in relation to the consumer. There is not nor can there be any direct interactivity between the advertiser or the advertisement and the consumer, with the sole exception of the slow process of coupon redemption.

12. When the R & D Project examined the whole industrial process from product or service concept and design to purchase by the consumer, it was clear that the technology of computers and telecommunications, particularly using the medium of the Internet or Interactive Television, or any of the new mobile services so rapidly emerging, could reconnect the manufacturer/supplier to the consumer in real-time dynamic interactivity closely analogous to the real-time interactivity of the street market.

12.1. The interactive responses from consumers could provide the direct, measurable feedback essential for a control system. Further the technology had the potential to automate the supplier's real-time interactivity with a mass of consumers, however remote.

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12.2. Certain parameters of the economics of the supplier's particular business could be configured in a template, to provide the basis for immediate automated responses to consumer behaviour. Dynamic changes in price and in other features of a real-time sales presentation could be programmed to match actual consumer response against the economic imperatives of the supplier.

12.3. One of the most important factors in creating a dynamic, exciting sales environment is real-time price change, particularly short-term dynamic buying opportunities, at special prices. The R & D project addressed the particular issue of technology which could communicate dynamic price change in real time to a mass of interactive consumers, log consumer action, and determine further supplier action as part of a continuing real-time supplier/consumer interactivity. This interactivity could be recorded, measured, and controlled by the manufacturer/supplier, in accordance with the economic imperatives of the manufacturer/supplier's business.

12.4. The R & D project noted that traditional auctions, both English and Dutch did not meet the requirements of industry for real-time dynamic interactivity between an individual vendor and a mass of consumers which would enable vendors to maximise the yield from productivity value, inventories and capacities. A new process was required which could enable vendors to maximise yield by dynamically changing prices up or down on a continuing variable basis in real time, in accordance with the economic imperatives of the vendor.



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### **BACKGROUND - PRIOR ART**

The formal patent searches and extensive searches of industrial processes in use on the Internet through November 1, 2000, have not disclosed publication of any real-time interactive industrial processes comparable to the described Process and associated claims.

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### **DESCRIPTION OF THE PROCESS**

1. The process enables a global marketplace providing trading information and accessibility to a multiplicity of vendors and to a multiplicity of consumers/purchasers and a means of spontaneous interactivity and communication whereby distant sales and purchases can be negotiated between a multiplicity of vendors and a multiplicity of consumers/ purchasers.
2. The process provides, on demand, a global menu for interactive international and/or national trading between a multiplicity of vendors and a multiplicity of consumers/purchasers/traders. All the trading information and the processes and procedures are presented in textual or audio or visual display including electronic imagery, optic imagery, film or video, static or moving, singly or in any combination, to an audience in a single- or multi-lingual format by means of a WWW site on the Internet or other interactive on-line service facilitating interactivity and communication by electronic and/or optic means via computers or TV transmission or by means of telephone facilities, static or mobile, or wireless transmissions or fiber optic cables or satellite transmissions or any other suitable means, singly or in combination, between a multiplicity of vendors and a multiplicity of consumers/ purchasers/traders, potentially for 24 hours per day, 7 days per week and 52 weeks a year, enabling real-time trading of property, products, financial instruments, goods , services, and unsold capacities on terms acceptable between a multiplicity of vendors and a multiplicity of consumers/ purchasers/traders.
3. A master server and/or subsidiary servers located by Nation, by State, by City or by community receive sales programs from vendors located by Nation, by State, by City or by community. These sales programs present property, products, financial instruments, goods, services or unsold capacities describing in detail the specifics on offer. The standard or regular price, and a lower starting price may be quoted for each specific. A minimum acceptable price for each specific on offer may be fixed. The master server and/or subsidiary servers may utilize a template and/or a prerecording of this information for the processing of subsequent trading with a

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multiplicity of consumers/purchasers/traders accessing the servers. Standard practice for the use of templates for computer control of a process is for a software engineer to program standard template modules which can be used on a mix and match basis quickly to set up the template needed for each precise use of the process.

4. Vendors can, by agreement with the Process controllers, readjust the parameters of their sales programs as frequently as is appropriate to the vendors' economic imperatives. The Process controllers may determine the time period of all sales programs occupying the process. For each and every readjustment of any vendor's sales programs, a new template and/or prerecording may be produced for the processing of any new trading arising from the readjusted sales program.

5. The master server and/or subsidiary servers offer a trading process to a multiplicity of consumers/purchasers/traders of property, products, financial instruments, goods, services or unsold capacities, whereby presentations of such items may identify (a) the product or service, (b) the vendor (c) a reference code for each specific on offer, and (d) the standard price for each specific. Consumers/purchasers/traders may be instructed on the rules of trading, the method of trading, and the means of consummating a transaction or trade and thereafter concluding such transaction or trade.

6. The Global trading process gives prospective consumers/purchasers/ traders access to offers of property, products, financial instruments, goods, services or unsold capacities at Global, National, State, City, community and interest group levels. The server programs may present menus giving (a) access to Global, National, State, City and local sales offers to consumers/purchasers/ traders (b) access to named vendors Globally or by Nation, State, City or community (c) access to information enabling identification of specific items on offer by vendors at locations Globally or Nationwide or by State, City, or community locations and (d) access to information enabling comparability of prices of similar items e.g. jeans being offered by different vendors Globally or by Nation, State, City or community.

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7. The global method of trading requires purchasers/traders to access by computer or other suitable means, servers or other sources offering vendors' presentations. Each and every such presentation displayed by screen or monitor may identify and describe (a) the items on offer (with identification code) and (b) their standard sale price. Immediately adjacent to each standard price is a meter/counter which may register, from time to time, a lower or higher price for an item, according and subject to uptake by consumers/purchasers/traders registering agreement to order or purchase the item at any given price level in the changing price process, until the sale of that particular item is closed. Attention may be drawn to a price change by means of a dramatic visual or audio signal. The closure conforms to the template or prerecording developed from the vendor's submitted program of sales. The meter/counter may indicate when the price sensitive item is no longer on sale. Software programs can be developed to achieve this effect. One such program may produce on a meter an effect similar to the one-arm-bandit common in casinos, or a Las Vegas Fruit Machine, the rotating of the counters holding attention and creating excitement, two elements important to the sales process.

8. Traditional media and/or any other means of communication may be used to draw attention to the trading process and in particular to current or planned special offers in the changing price process. Newspapers may be used to draw attention to planned or expected price changes. TV or radio or mobile phones or any other immediate media may be used to draw attention to a price change opportunity immediately available on a particular site. A dramatic visual and/or audio signal may be used on TV or radio or mobile phone or any other similar media to draw attention to a price change about to take place or currently taking place. A particular use of a dramatic visual and/or audio signal arises where Internet access is provided by cable or wireless connection also being used to provide TV transmissions and where the viewer of a TV transmission, on being alerted by a dramatic visual and/or audio signal may call up a chosen site either on a split screen or in a window within the TV screen or on an adjacent screen.

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9. Potential consumers/purchasers/traders accessing any particular vendor's sales presentations may be required to register identifying information such as an e-mail address or Social Security number with that particular program, if it is intended to trade with that particular program. To order an item the consumer/ purchaser may use a cursor to enter or by any other means enter (a) the registration or identifying information (b) the given displayed code for the item (c) the price currently displayed in the price sensitive meter/counter for the item and (d) the time if displayed on the vendor's sales presentation - finally uploading this information to the server via an on-line screen or on-monitor registration instruction. Some or all of these steps may be automated and combined to a single click.
10. The trade between the purchaser and the vendor may be immediately confirmed by the server to the individual monitor or screen, by means of an order number displayed on the monitor or screen. It may be printed out and/or confirmed by e-mail. This order number is the purchaser's proof of order and of the purchase agreed.
11. The purchase is finally concluded by presentation of the order number at the vendor's premises. The order number and relevant agreed price are validated by the vendor. The item is paid for and collected by the consumer/ purchaser. The transaction is concluded. An alternative process is for the consumer/purchaser to enter a credit card number or other means of payment and have the item delivered.
12. In the process, as and when orders are registered and uploaded to the servers, the confirmed order number, each purchaser's identity, the coded item, the price and the time of each transaction may be notified by appropriate means from the process controllers to respective vendors. The vendors may conclude a sale with a customer who presents an order confirmation.
13. The process allows a multiplicity of purchasers to interact with a multiplicity of vendors. Consumers/purchasers may order any item or items on any vendor's presentation irrespective of whether it is price sensitive or not, and the

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acknowledgement thereof may be confirmed by means of the on-screen or on-monitor number displayed following the uploading of the registered information at the time of order. An order may alternatively be confirmed by telephone or e-mail.

14. The process may provide facilities for purchasers to use credit card or other electronic payment by means of a security coding system which may be insured by the participating vendors against unauthorised use of the purchaser's credit card or other electronic payment resulting from the transaction.

15. The price changes effected in this process are accomplished by Dynamic Pricing Technology. The function of Dynamic Pricing Technology is to enable vendors to offer products or services or capacities for sale at frequently changing prices via distant interactive means. Potential buyers, who may be any user accessing a vendor site, are able to receive all price changes as they occur. Price changes are updated on the potential buyer's computer or television screens or telephone screens or other means of reception, in real time, with no action on the potential buyer's part.

16. Dynamic Pricing Technology works as follows:

16.1. The vendor sets a range of variables which determine the ways in which the price will vary. For example these variables may include:

- \* Date and time ranges within which different pricing regimes are to be used
- \* Price range and price change step size
- \* Inventory quantity parameters, enabling pricing regimes to vary automatically as inventory increments or decrements
- \* Rate-of-change parameters, enabling vendors to vary the rate of price change according to demand or other factors
- \* Purchase prices (for the vendor) and availability date
- \* Cross-selling factors for links to the sales of other products or services
- \* Total turnover and/or profitability factors for the product or service
- \* Opportunity costs of inventory value
- \* Priority codes to enable automatic prioritising of products competing

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for display time

- \* Price change algorithms to enable all or any variables to be used to calculate a display price at any point in time
  - \* Randomising factors to enable price changes to be made unpredictably.
- 16.2. Prices are calculated and recalculated using the variables and algorithms indicated above, and broadcast to browsers and potential buyers who are logged on.
- 16.3. Each time a price changes, the viewer's displays are updated directly from the vendor's or process controller's site without any action on the part of the potential buyer or browser.
17. The process of change of prices and of notification of such changes or planned changes introduces an important element of drama and excitement into this method of trading. The drama and excitement are valuable in motivating purchase decisions.
- 18 The process of real time change in price and real time buyer response introduces unique opportunities:
- 18.1. to discover marginal purchaser response to price change and thereby to plot in real time the demand curve for any product, service or anything else sellable.
- 18.2. to test market products, services and anything else sellable.
19. The Dynamic Pricing Technology and the interactive trading process with real time price change enable a resolution of the Supply/Demand economic conundrum confronting all commercial enterprises in their business planning and activities at all times, by making yield control configurations constantly available to management .

## **Global Interactive Competitive Trading with Dynamic Pricing**

### **Preferred Mode of the Process**

The preferred mode of the process is for the sale of time-sensitive productivity value, inventories, capacities and services.

#### **Setting-Up the Process.**

1. The vendor sets up the parameters for a dynamic pricing regime which may provide an aggregate value of sales, maximising the yield from the marketing of productivity value, inventories, capacities or services.
2. These parameters will include the following:
  - A description of the item to be sold
  - A first quantity to be offered
  - A first price
  - A time during which the offer is to be open
3. The first choice of parameters forms the basis for the initial offer..

#### **Use of the Process**

1. Potential customers are attracted to log on to the vendor's web site showing the specifics for sale, including the standard price.
2. A signal indicates that a price is about to change. The counters roll for that specific. Potential customers await the price on offer.
3. The counters stop rolling, indicating the new price, which may be higher or lower than the previous price on offer.
4. Customers make a decision on whether to place an order.
5. Some customers place an order.
6. Orders are logged for fulfillment and analysis of uptake.
7. The offer may be closed, withdrawn or changed by the vendor's dynamic pricing regime at any time.



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### **Adjustment of the Process**

1. From time to time the vendor may change the dynamic pricing regime. Successive offers may be made. More customers may place orders. Such orders are logged for fulfillment, and analysis of the uptake.
2. When considering changes to the dynamic pricing regime, the vendor will balance the rate of uptake and the aggregate yield value at any given time against the economic imperatives of the vendor's business.
3. The vendor will make any adjustments to the dynamic pricing regime in accordance with the market uptake which is providing the highest aggregate yield from the sale.
4. Adjustments to the dynamic pricing regime may be made at any time. This may involve special offers at any time.

### **Summary**

By this process, in a marketing environment which attracts and excites consumer impulse buying, the yield from time-sensitive productivity values, inventories, capacities and services is maximised.

## **Global Interactive Competitive Trading with Dynamic Pricing**

### **CLAIMS**

1. A process for improving real-time interactivity between one or more vendors and a multiplicity of remote consumers or traders, and comprising transmission via the Internet or interactive television or wirelessly or by any other convenient means of real-time interactive communication of signals causing a counter or counters to appear on the receiving means of multiple remote consumers or traders and to rotate or cease to rotate and to display on the receiving means a dynamically changing price for any item offered for sale by a vendor.
2. A process for improving real-time interactivity between one or more vendors and a multiplicity of consumers or traders comprising the following steps:
  - \* transmission via the Internet or interactive television or wirelessly, or by any other convenient means of real-time interactive communication, of signals causing a counter or counters to appear on the receiving means of multiple remote consumers or traders and to rotate or cease to rotate and to display on the receiving means a dynamically changing price for any item offered for sale by a vendor
  - \* reception by multiple remote consumers or traders of the transmitted signals causing a counter or counters to appear on the receiving means of multiple remote consumers or traders and to rotate or cease to rotate and to display on the receiving means a dynamically changing price for any item offered for sale by a vendor
  - \* rotation of the counter or counters to start a process of dynamically changing, on the screens of multiple remote consumers or traders, the price offered by a vendor for a specific product or service
  - \* cessation of rotation of the counter or counters on the screens of multiple remote consumers or traders to show a price immediately on offer for a specific product or service

### **Global Interactive Competitive Trading with Dynamic Pricing**

- \* customer selection, by clicking on an icon or by any convenient means, of a product or service to be purchased at the price then on display
  - \* transmission of the customer's order to the vendor by any suitable means of transmission with or without authorisation of payment.
  - \* reception by the vendor of the customer's order.
  - \* either collection of the customer's authorised payment and delivery of the ordered item to the customer by the vendor or acknowledgement of the order with confirmation for collection at any suitable location and payment at that location.
3. A process as in claim 2 with additional steps:
- \* repetition of the steps of claim two logging the responses of consumers or traders to offers with variations of chosen factors which typically may include
    - \*\* market to which any offer is made and/or
    - \*\* significant feature of an item offered and/or
    - \*\* price on offer
  - \* analysis of consumer or trader responses, part of which analysis may be the plotting of the demand curves of consumer or trader responses to variations in price
4. A process as in claim 2 with additional steps:
- \* repetition of the steps of claim two logging the responses of consumers or traders to offers with variations of chosen factors including:
    - \*\* market to which any offer is made and/or
    - \*\* significant feature of an item offered and/or
    - \*\* price on offer
  - \* analysis of consumer or trader responses part of which analysis may be the plotting of the demand curve of consumer or trader responses to variations in price
  - \* use of such analysis of consumer or trader responses as an aid in market research and product and marketing planning.

### **Global Interactive Competitive Trading with Dynamic Pricing**

5. A means of attracting attention of remote consumers or traders via the Internet or other means of remote interactive communication and/or of exciting such consumers or traders to make a purchasing decision and consisting of actuating from a server or other originating means one or more counters on the computer screen or other receiving means of remote consumers or traders which counters rotate or cease to rotate on command from the remote server and produce a display of price or other information in a form similar to the rotating counter display of a one-arm bandit machine.
6. A process enabling vendors to control yield maximisation from the sale of productivity value, inventories and capacities in accordance with a vendor's economic imperatives and comprising the following steps:
  - \* definition by the vendor of the current economic imperatives of the vendor's business, and the priorities within these imperatives.
  - \* definition of a sales program, in accordance with the economic imperatives and priorities of the vendor's business.
  - \* entering the sales program in a template to control the sales process.
  - \* transmission via the Internet or interactive television or wirelessly or by any other convenient means of real-time interactive communication of
    - \*\* details of the product or service to be offered for sale
    - \*\* signals capable of causing a counter or counters to appear on the receiving means of multiple remote consumers or traders and to rotate or cease to rotate and to display on the receiving means a dynamically changing price for any item offered for sale by a vendor
  - \* reception by multiple remote consumers or traders of the transmitted
    - \*\* details of the product or service to be offered for sale and
    - \*\* signals capable of causing a counter or counters to appear on the receiving means of multiple remote consumers or traders and to rotate or cease to rotate and to display on the receiving means a dynamically changing price for any item offered for sale by a vendor

### **Global Interactive Competitive Trading with Dynamic Pricing**

- \* rotation of the counter or counters to start a process of dynamically changing, on the screens of multiple remote consumers or traders, the price offered by a vendor for a specific product or service
- \* cessation of rotation of said counter or counters on the screens of multiple remote consumers or traders to show a price immediately on offer for a specific product or service
- \* customer selection, by clicking on an icon or by any convenient means, of a product or service to be purchased at the price then on display
- \* transmission of the customer's order to the vendor by any suitable means of transmission with or without authorisation of payment.
- \* reception by the vendor of the customer's order.
- \* either collection of the customer's authorised payment and delivery of the ordered item to the customer by the vendor or acknowledgement of the order with confirmation for collection at any suitable location and payment at that location.
- \* under the control of the template, repetition of selected steps logging the responses of consumers or traders to offers with variations of chosen factors which typically may include
  - \*\* market to which any offer is made and/or
  - \*\* significant feature of an item offered and/or
  - \*\* price on offer
- \* analysis of consumer or trader responses
- \* further offer of items to meet the economic imperatives of the vendor's business.
- \* closing or withdrawal of any offer at the discretion of the vendor
- \* if required, further repetition of any of the above steps including restructuring the parameters or configuration of the template.

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## DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference	<b>IMPORTANT DECLARATION</b>	Date of mailing (day/month/year) <b>24/09/2001</b>
International application No. <b>PCT/GB 00/ 04256</b>	International filing date (day/month/year) <b>06/11/2000</b>	(Earliest) Priority date (day/month/year) <b>19/11/1999</b>
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Applicant <b>SCOTT, Richard, Nelson</b>		

This International Searching Authority hereby declares, according to Article 17(2)(a), that no international search report will be established on the international application for the reasons indicated below

1. ☐ The subject matter of the international application relates to:
  - a. ☐ scientific theories.
  - b. ☐ mathematical theories
  - c. ☐ plant varieties.
  - d. ☐ animal varieties.
  - e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
  - f. ☐ schemes, rules or methods of doing business.
  - g. ☐ schemes, rules or methods of performing purely mental acts.
  - h. ☐ schemes, rules or methods of playing games.
  - i. ☐ methods for treatment of the human body by surgery or therapy.
  - j. ☐ methods for treatment of the animal body by surgery or therapy.
  - k. ☐ diagnostic methods practised on the human or animal body.
  - l. ☐ mere presentations of information.
  - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.
2. ☒ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
 

☐ the description
☒ the claims
☐ the drawings
3. ☐ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
 

☐ the written form has not been furnished or does not comply with the standard.
 ☐ the computer readable form has not been furnished or does not comply with the standard.
4. Further comments: see further information sheet

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  <b>Roger Thomas</b>
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## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

The claims relate to subject matter for which no search is required according to Rule 39 PCT. Given that the claims are formulated in terms of such subject matter or merely specify commonplace features relating to its technological implementation, the search examiner could not establish any technical problem which might potentially have required an inventive step to overcome. Hence it was not possible to carry out a meaningful search into the state of the art (Art. 17(2)(a)(i) and (ii) PCT).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.